

SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found in on page 4, lines 10-11, 23, on page 5, line 19, on page 6, line 8 and on page 27, Table 4 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment claims 1-5 and 9-13 will remain active in this application.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a polyester resin composition for a toner.

Polyester resins have been used as binder resins for toners. The increased demand for color toners have highlighted some properties of polyester resins which are undesirable. More specifically, color reproducibility combined with durability can be difficult to obtain with a polyester resin. Accordingly, polyester resins suitable for binders in color toners are sought.

The claimed invention addresses this problem by providing for a polyester resin composition in which raw material monomers are condensed in the presence of either a diamino- dialkoxy-substituted titanium compound or a tetra C₈₋₁₈ alkoxy substituted titanium catalyst and an inorganic phosphorous compound. Applicants have discovered that such a combination of components provides for a polyester resin which gives good performance in a colored toner binder. Such a polyester resin is neither disclosed nor suggested in the cited prior art of record.

The rejections of claims 1-3, 12 and 13 under 35 U.S.C. § 102(b) over Barkey (U.S. 5,217,440), of claims 1-3, 9 and 13 under 35 U.S.C. § 102(b) over Kawase et al U.S. 3,953,539, of claims 1-5 and 13 under 35 U.S.C. § 102(b) over Harazoe et al U.S. 5,519,112, of claims 1-3 and 13 under 35 U.S.C. § 102(b) over Adams et al U.S. 5,681,918 and under 35

U.S.C. § 103(a) over the references cited above in combination with Shiraldi U.S. 5,922,828 are respectfully traversed.

None of the cited prior art of record discloses or suggests the use of a diamino-dialkoxy substituted titanium compound nor that by using a C₈₋₁₈ tetrasubstituted alkoxy titanium compound that an improvement in properties for a polyester resin would be observed.

As evidence of the unexpected improvement in color reproducibility by the use of tetra C₈₋₁₈ alkoxy substituted titanium compound, applicants enclose herewith the declaration of Mr. Takashi Kubo, a named inventor of the above-identified application.

The Kubo declaration compares the degree of coloration, durability and color reproducibility for four tetra-substituted alkoxy titanium compounds, two catalyst having C₈₋₁₈ alkoxy groups and two catalysts having C₃₋₄ alkoxy groups. For the examiner's convenience the data is reproduced below:

Table A

Titanium Compound		Phosphorus Compound		Tm (°C)	Tg (°C)	Degree of Coloration (ΔE)	Durability	Color Reproducibility
Kind	Amount Used	Kind	Amount Used					
Toner A Tetraisopropyl Titanate	Ti(C ₃ H ₇ O) ₄ 0.3	P1	0.3	101.2	62.3	Δ(9.7)	○	○
Toner B Tetrabutyl Titanate	Ti(C ₄ H ₉ O) ₄ 0.3	P1	0.3	102.2	63.1	Δ(8.5)	○	○
Toner C Tetraoctyl Titanate	Ti(C ₈ H ₁₇ O) ₄ 0.3	P1	0.3	102.6	63.0	○(4.6)	○	◎
Toner D Tetrastearyl Titanate	Ti(C ₁₈ H ₃₇ O) ₄ 0.3	P1	0.3	103.5	64.2	○(4.0)	○	◎

Note) The amounts of the titanium compound and the phosphorus compound used are expressed in weight ratio based on 100 parts by weight of the raw material monomers for the resin composition.

P1: Polyphosphoric Acid

The data illustrates that for the C₃₋₄ alkoxy substituted titanates (Toners A and B), a higher degree of coloration and reduced color reproducibility were observed. In contrast, Toners C and D having C₈₋₁₈ alkoxy substitution exhibited a lower degree of coloration and improved color reproducibility. Such an improvement in color reproducibility by selection of C₈₋₁₈ alkoxy substitution is nowhere disclosed or suggested in the cited referenced.

Moreover, applicants' demonstration of improved color reproducibility, while not recited in the claims is none the less evidence of patentability as a compound and all its properties are inseparable *In re Papesch* 315 F.2d 381, 391, 137 USPQ 43, 51, (CCP 1963) (MPEP 2141.02V)

Barkey describes the formation of a polyester in the presence of a transesterification catalyst such as a titanium, zinc or manganese compound including a tetraisopropyl titanate (column 6, lines 30-57). Applicants have provided evidence of an unexpected improvement in color reproducibility by selection of a C₈₋₁₈ alkoxy titanate as compared with tetraisopropyl titanate as illustrated in Barkey.

The remaining cited references fail to suggest any improvement in resin properties by selecting an inorganic phosphorous compound in a polymerization of monomers.

As the cited reference fails to disclose an improved performance in toner applications by preparation of a polyester resin as claimed, the claimed invention is clearly neither anticipated nor made obvious from this reference and accordingly withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. §103(a) are respectfully requested.

Applicants submit this application is now in condition for allowance and early
notification of such action is earnestly solicited.

Respectfully submitted,

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